

IARA Results

1. Overview

Initial query compounds	5
Compounds successfully predicted	4
Compounds excluded due to lack of targets	1

2. Query Compound Profiling

Compound Name	Chemical Structure	ChEMBL ID	Presence in Training Set	Target Proteins	Morgan Fingerprint
Allopurinol		CHEMBL1467	DILI_RANK 2.0	3	YES
Bisphenol A		CHEMBL418971	-	5	YES
Triclocarban		CHEMBL1076347	-	14	YES
(S)-3-acetylamino-2,2-difluoro-4-phenyl-butyric acid methyl ester		CHEMBL300764	-	1	YES
Hydroxyitraconazole		CHEMBL1631217	-	0	Skipped: No targets

3. Compound-Target Protein Mapping

Compound Name	ChEMBL ID	Target Uniprot ID	Uniprot Name	Organism	pChEMBL Value	Linked to PPI?
Bisphenol A	CHEMBL418971	P03372	Estrogen receptor	Homo sapiens	5.64	YES
Bisphenol A	CHEMBL418971	P10275	Androgen receptor	Homo sapiens	5.23	YES
Bisphenol A	CHEMBL418971	P50406	5-hydroxytryptamine receptor 6	Homo sapiens	5.27	YES
Bisphenol A	CHEMBL418971	P62508	Estrogen-related receptor gamma	Homo sapiens	8.26	YES
Bisphenol A	CHEMBL418971	Q92731	Estrogen receptor beta	Homo sapiens	5.96	YES
Triclocarban	CHEMBL1076347	P03372	Estrogen receptor	Homo sapiens	5.46	YES
Triclocarban	CHEMBL1076347	P07099	Epoxide hydrolase 1	Homo sapiens	6.92	YES
Triclocarban	CHEMBL1076347	P0DMS8	Adenosine receptor A3	Homo sapiens	5.68	YES
Triclocarban	CHEMBL1076347	P10275	Androgen receptor	Homo sapiens	5.36	YES
Triclocarban	CHEMBL1076347	P10276	Retinoic acid receptor alpha	Homo sapiens	5.51	YES
Triclocarban	CHEMBL1076347	P11229	Muscarinic acetylcholine receptor	Homo sapiens	6.15	YES
Triclocarban	CHEMBL1076347	P11511	Aromatase	Homo sapiens	5.02	YES
Triclocarban	CHEMBL1076347	P23975	Sodium-dependent noradrenaline transporter	Homo sapiens	6.06	YES
Triclocarban	CHEMBL1076347	P34913	Bifunctional epoxide hydrolase	Homo sapiens	7.89	YES
Triclocarban	CHEMBL1076347	P35348	Alpha-1A adrenergic receptor	Homo sapiens	5.61	YES
Triclocarban	CHEMBL1076347	P35372	Mu-type opioid receptor	Homo sapiens	5.31	YES
Triclocarban	CHEMBL1076347	P35869	Aryl hydrocarbon receptor	Homo sapiens	5.67	YES
Triclocarban	CHEMBL1076347	Q96P20	NACHT, LRR and PYD domains-containing protein 1	Homo sapiens	5.83	YES
Triclocarban	CHEMBL1076347	Q9NUW8	Tyrosyl-DNA phosphodiesterase 1	Homo sapiens	6.08	YES
Allopurinol	CHEMBL1467	P31645	Sodium-dependent serotonin transporter	Homo sapiens	5.38	YES
Allopurinol	CHEMBL1467	P35348	Alpha-1A adrenergic receptor	Homo sapiens	5.54	YES
Allopurinol	CHEMBL1467	P47989	Xanthine dehydrogenase/oxidase	Homo sapiens	5.38	YES

Compound Name	ChEMBL ID	Target Uniprot ID	Uniprot Name	Organism	pChEMBL Value	Linked to PPI?
(S)-3-acetylamino-2,2-difluoro-4-phenylbutyric acid methyl ester	ChEMBL300764	P17538	Chymotrypsinogen B	Homo sapiens	4.47	YES

4. Organ-specific Predictions

AD: Applicability Domain

ChEMBL ID	Compound Name	Heart Youden Threshold: 0.64	Liver Youden Threshold: 0.34	Nervous System Youden Threshold: 0.57	Kidney Youden Threshold: 0.59
ChEMBL1467	Allopurinol	Hazard (0.88) In AD	Hazard (0.92) In AD	Hazard (0.70) In AD	No Hazard (0.53) In AD
ChEMBL418971	Bisphenol A	Hazard (0.87) In AD	Hazard (0.87) In AD	Hazard (0.87) In AD	No Hazard (0.29) In AD
ChEMBL1076347	Triclocarban	Hazard (0.78) In AD	Hazard (0.97) In AD	Hazard (0.79) In AD	Hazard (0.63) In AD
ChEMBL300764	(S)-3-acetylamino-2,2-difluoro-4-phenylbutyric acid methyl ester	Hazard (0.86) Out AD	No Hazard (0.33) Out AD	No Hazard (0.30) Out AD	No Hazard (0.29) In AD

5. Applicability Domain

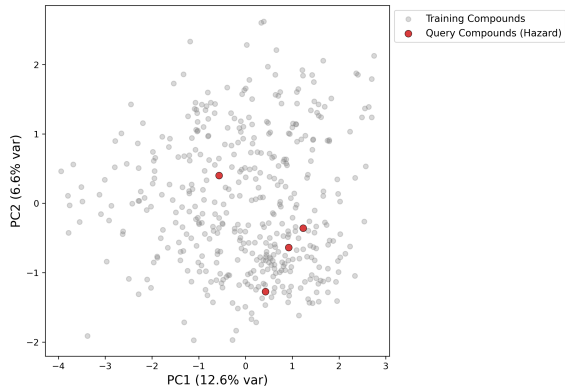
The Applicability Domain (AD) evaluates whether a query compound is similar enough to the model's training data to ensure a reliable prediction. If a compound lies beyond the dataset's coverage, the model's prediction carries higher uncertainty. To evaluate this, two plots are shown below:

- **PCA Projection Maps:** Compare the features of query compounds against the training distribution to highlight whether they fall within the model's feature space or lie outside it.
- **Limits Boundary Plots:** Display Hotelling's T² and Q-residual thresholds to determine whether each compound sits within the model's statistical reliability boundary.

HEART

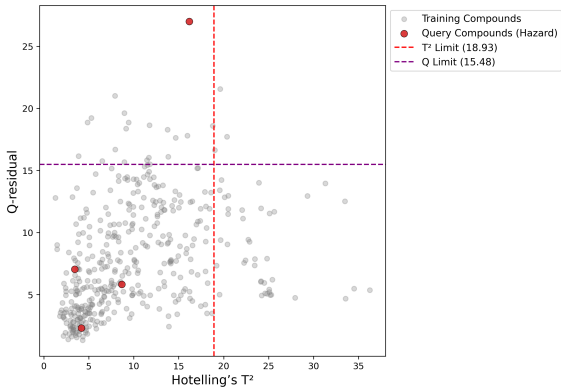
PCA PROJECTION MAP

Heart Latent Space



LIMITS BOUNDARY DISTRIBUTION

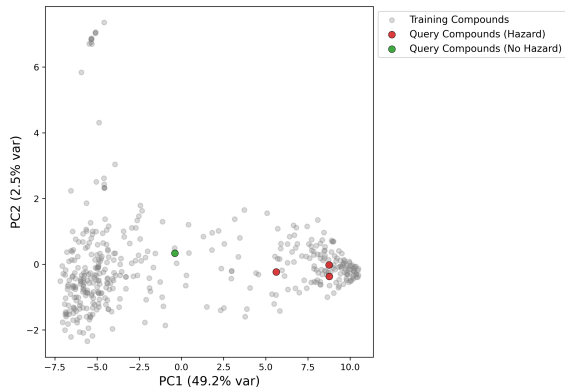
Heart T² vs Q-Residual Space



LIVER

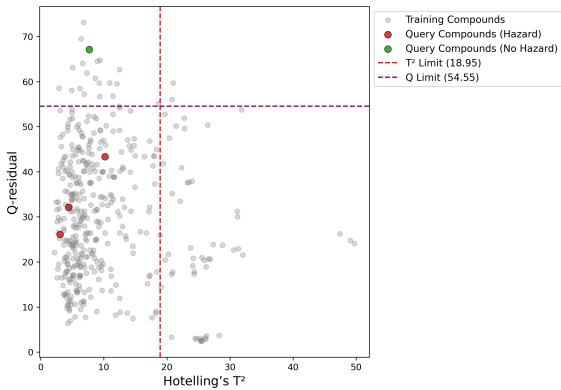
PCA PROJECTION MAP

Liver Latent Space



LIMITS BOUNDARY DISTRIBUTION

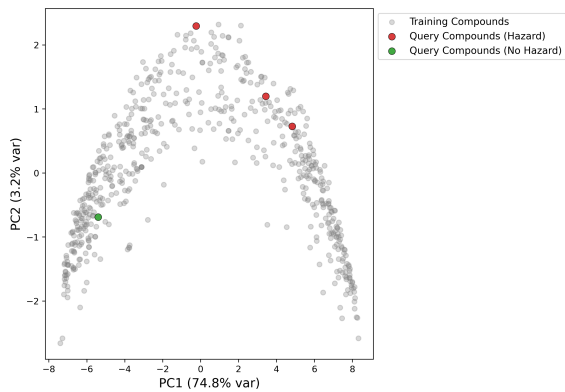
Liver T² vs Q-Residual Space



NERVOUS SYSTEM

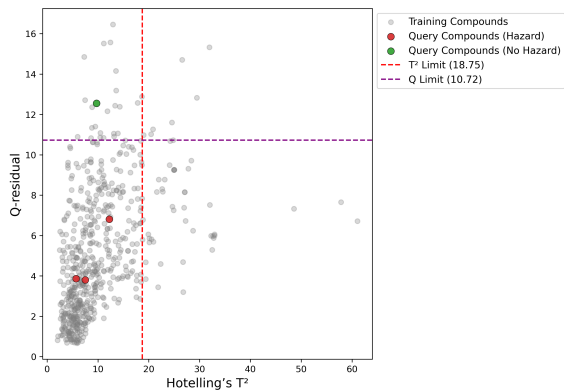
PCA PROJECTION MAP

Nervous System Latent Space



LIMITS BOUNDARY DISTRIBUTION

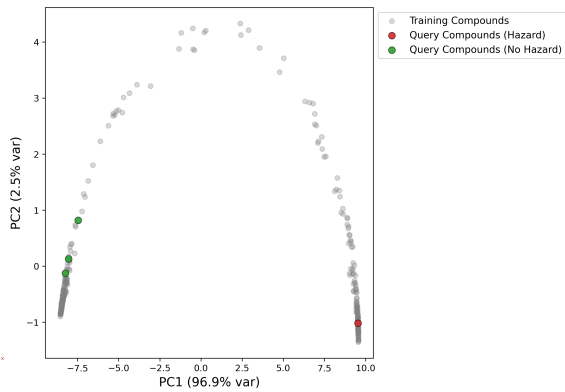
Nervous System T² vs Q-Residual Space



KIDNEY

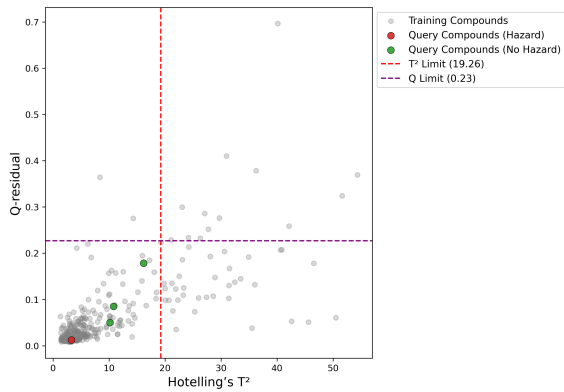
PCA PROJECTION MAP

Kidney Latent Space



LIMITS BOUNDARY DISTRIBUTION

Kidney T² vs Q-Residual Space



6. Excluded Query Compounds

The following compounds were excluded due to a lack of valid target associations:

- Hydroxyitraconazole (0 Associated Target Proteins)